IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:	:	Art Unit: 2622
Johannesson et al.	:	Attorney Docket: 35947-207175
Application No.: 10/510,208	:	Confirmation No.: 4410
Filed: October 5, 2004	:	Examiner: Paul M. Berardesca

Title: ARRANGEMENT IN A MEASURING SYSTEM

RESPONSE TO NOTIFICATION OF NON-COMPLIANT APPEAL BRIEF

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Sir:

In response to the notification of non-compliant appeal brief dated July 8, 201, Applicants submit a revised Summary of the Claimed Subject matter that maps to the specification by page and line number rather than by paragraph number as in the appeal brief as originally submitted.

The undersigned authorizes the Commissioner to charge insufficient fees and credit overpayment associated with this communication to Deposit Account No. 22-0261.

Respectfully Submitted,

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Summary of Claimed Subject Matter

The invention recited in independent claim 9 includes system for measuring character-dependent parameters of an object 2. (*See* page 4, lines 6-16; and Fig. 1.) At least one light source 4, 5 emits light towards the object 2 (page 4, lines 6-16; and Fig. 1). A sensor 10 includes a first area of pixels 11 having a first degree of resolution (page 5, lines 10-23; and Figs. 2-5). The first area images three-dimensional geometrical characteristics of the object (page 5, lines 10-23). A second area of pixels 12 has a second degree of resolution different from the first degree of resolution (page 5, lines 10-23;and Figs. 2-5). The second area images two-dimensional characteristics of the object (page 5, lines 10-23). The first area of pixels and the second area of pixels absorb electro-magnetic radiation from the object and to convert the electro-magnetic radiation into electrical charges. (*See* page 4, lines 18-24.)

Independent claim 16 is directed to an invention that includes a sensor 10 for imaging characteristics of an object 2 (page 4, lines 6-16; and Fig. 1). The sensor includes a first area of pixels 11 having a first degree of resolution. (*See* page 5, lines 10-23; and Figs. 2-5). The first area images three-dimensional geometrical characteristics of the object (page 5, lines 10-23). A second area of pixels 12 has a second degree of resolution different from the first degree of resolution. (See page 5, lines 10-23; and Figs. 2-5). The second area images two-dimensional characteristics of the object (page 5, lines 10-23). The first area of pixels and the second area of pixels absorb electromagnetic radiation from the object and convert the radiation absorbed into electrical charges. (*See* page 4, lines 18-24).

According to claim 3, which depends from claim 16, at least one of the two areas includes in its entirety or partially color filters in order to image the object in color (page 5, lines 10-23).

As recited in claim 4, which depends from claim 16, the first area is designed as a matrix having N rows and M columns, wherein the second area is designed as a matrix having X rows and Y columns and wherein Y is b multiplied by M columns, where b is an integer greater than zero. (*See* page 5, lines 10-23.)

Claim 5, which depends from claim 4 recites that time delay integration may be used on the second area (page 8, lines 12-17).

According to claim 6, which depends from claim 16, at least one of the areas includes filters for different wavelengths in order to minimize crosstalk (page 8, lines 4-10).

As recited in claim 7, which depends from claim 16, wherein the first area and the second area are arranged parallel in a transverse direction as one integral unit (page 5, lines 1-8; and page 6, lines 21-29).

Claim 8, which depends from claim 16, recites that the first area and the second area may be arranged parallel in a transverse direction as two separate units (page 6, lines 21-29).

According to claim 10, which depends from claim 9, the system may include an output

register 15, 18a, and 18b arranged to read out the charges received in the sensor (page 4, lines 18-24; page 6, line 35, through page 7, line 5; and page 7, line 14, through page 8, line 2).

As recited in claim 11, which depends from claim 9, the system may also include at least two output registers 18a, 18b arranged to read out the electrical charges received in the sensor (page 6, line 35, through page 7, line 5; page 7, lines 14-24; and Fig. 7).

Claim 12, which depends from claim 11, recites that the first area and the second area of the sensor may each be read out on a separate output register (page 6, line 35, through page 7, line 5; page 7, lines 14-24; and Fig. 7).

According to claim 13, which depends from claim 11, the second area of the sensor may include color filters, wherein each color picked up has a separate output register (page 5, lines 10-29; and page 7, line 31, through page 8, lines 2).

As recited in claim 14, which depends from claim 10, the system may also include an A/D converter 16, 19a, 19b arranged to convert the electrical charges from an analog to a digital format, wherein the output register is a digital output register (page 6, line 35, through page 7, line 5; page 7, lines 14-29; and Figs. 6 and 7).

Claim 15, which depends from claim 9, recites that the system may also include an image/signal processing unit 17 arranged to analyze the electrical charges (page 6, line 35, through page 7, line 12; and Figs. 6 and 7).

According to claim 17, which depends from claim 16, the three-dimensional geometrical characteristics may include width, height, and volume (page 5, lines 10-23).

As recited in claim 18, which depends from claim 16, the two-dimensional characteristics may include cracks, structural orientation, and position (page 5, lines 10-23).

Claim 19, which depends from claim 16, recites that the second area of pixels may have a greater pixel density across the sensor in a direction perpendicular to a scanning direction than the first area of pixels (page 5, lines 1-23; and Figs. 3-5).

According to claim 20, which depends from claim 9, the second area of pixels may have a greater pixel density across the sensor in a direction perpendicular to a scanning direction than the first area of pixels (page 5, lines 1-23; and Figs. 3-5).

The claimed invention, which includes a sensor that includes two different regions that measure different information about an object with different resolutions can result in increased resolution across the sensor, faster sampling of 2D data and at a higher resolution in both the X and Y directions. On the other hand, attempts to increase resolution utilizing known devices employed oversampling and only resulted in an increase in resolution in a Y direction. Resolution across the sensor (in the X direction) is typically limited by pixel density and along the sensor (in the Y direction) by scanning speed. The claimed invention can increase resolution utilizing a higher density of pixels. The sensor can sense different properties at different

resolutions from the same area on an object. This was not known in the prior art.

The claimed invention provides a sensor and a system that read in multiple characteristics images with different degrees of resolution. The solution according to the claimed invention is simpler, cheaper and more compact that previously known solutions. Embodiments of the claimed invention can also provide a greater freedom with regard to exposure times and with regard to degrees of resolution in both the transverse direction and the lateral direction. A system according to the invention requires fewer system components, such as cameras and lenses. Along these lines, using one sensor to image multiple characteristics reduces the cost and complexity of the system, particularly as compared to using one sensor for the 3D measurement and another sensor for the 2D measurement.